

PROJECT DESCRIPTION
GENERAL

THIS PROJECT INVOLVES THE MODIFICATION OF THE EXISTING TRAFFIC SIGNAL AT THE INTERSECTION OF MD 24 AT MACPHAIL ROAD IN HARFORD COUNTY. MD 24 IS CONSIDERED TO RUN IN A NORTH/SOUTH DIRECTION.

THE INTERSECTION MODIFICATIONS WILL BE TO INSTALL NEW CABINET AND ELECTRICAL SERVICE PEDESTAL, NEW STEEL STRAIN POLE IN SOUTHWEST CORNER, AND PEDESTRIAN POLE IN THE NORTHWEST CORNER. ALL PEDESTRIAN SIGNAL EQUIPMENT IS TO BE RELOCATED.

INTERSECTION OPERATION

A SYSTEM CONTROLLER HOUSED IN A BASE MOUNTED CABINET SHALL BE INSTALLED AT THIS LOCATION. THE INTERSECTION WILL OPERATE IN A FULLY ACTUATED MODE USING 8 NEMA PHASES. THERE IS AN EXCLUSIVE LEFT TURN PHASE FOR THE NORTH AND SOUTHBOUND MOVEMENTS OF MD 24. THE MD 24 THROUGH MOVEMENTS OPERATE CONCURRENTLY WITH A CONCURRENT PEDESTRIAN MOVEMENT ACROSS THE WEST LEG OF THE INTERSECTION. THERE IS AN EXCLUSIVE LEFT TURN MOVEMENT FOR BOTH THE EAST AND WEST LEGS OF MACPHAIL ROAD. THE MACPHAIL ROAD MOVEMENTS OPERATE CONCURRENTLY WITH AN ACTUATED PEDESTRIAN MOVEMENT ACROSS THE NORTH LEG OF THE INTERSECTION.

SPECIAL NOTES

- ALL INTERNAL CABINET WIRING SHALL BE PERFORMED BY THE SHA SIGNAL SHOP. CONTRACTOR SHALL CONTACT ED RODENHIZER 72 HOURS PRIOR TO CONSTRUCTION.
- EXISTING APS WILL FUNCTIONS AS FOLLOWS:
 - FOR VIETNAM VETERANS MEMORIAL HIGHWAY
A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON MESSAGE WILL BE "WAIT TO CROSS MD 24 AT WEST MACPHAIL ROAD. WAIT"
B. WHEN WALK PHASE BEGINS, THE AUDIBLE SOUND WILL BE A RAPID TICK, WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.
 - FOR MACPHAIL ROAD
A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON MESSAGE WILL BE "WAIT TO CROSS WEST MACPHAIL ROAD AT MD 24. WAIT"
B. WHEN WALK PHASE BEGINS, THE AUDIBLE SOUND WILL BE A RAPID TICK, WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

EQUIPMENT LIST

- EQUIPMENT TO BE SUPPLIED BY THE ADMINISTRATION.
NONE.
- EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR.

QUANTITY	UNITS	DESCRIPTION
LUMP SUM	LS	MAINTENANCE OF TRAFFIC
LUMP SUM	LS	MOBILIZATION
1	EA	12 IN. X 32 FT. 2 PLY STRAIN POLE
2	EA	5 FT. STEEL PEDESTAL POLE WITH BREAKAWAY BASE
1	EA	10 FT. STEEL PEDESTAL POLE WITH BREAKAWAY BASE
1	EA	20 FT. LUMINARIE ARM
1	EA	250W HPS LAMP AND LUMINAIRE
1	EA	STANDARD S.H.A. TRAFFIC SIGNAL CONTROLLER, BASE MOUNTED NEMA 6 CABINET, VIDEO DETECTION INTERFACE, TELEMETRY INTERFACE EQUIPMENT, AND TWO (2) FOUR-CHANNEL LOOP DETECTOR AMPLIFIERS (Note: CONTROLLER AND CABINET SHALL BE PURCHASED FROM ECONOLITE AND DELIVERED TO THE S.H.A. SIGNAL SHOP FOR WIRING AND TESTING, CONTACT MR. ED RODENHIZER (410) 787-7650)
6	EA	TERRA VIDEO DETECTOR CAMERA
1950	LF	TERRA VIDEO DETECTOR CAMERA CABLE
3	EA	MICROLOOP PROBE (SET OF 3) WITH 1000 FT. LEAD-IN CABLE
4	EA	12 IN. 3-SECTION LED SIGNAL HEAD - SPAN
4	EA	12 IN. 3-SECTION LED SIGNAL HEAD (RA,YA,GA) - SPAN
3	CY	TEST PIT EXCAVATION
3	EA	HANDHOLE
75	LF	1-CONDUCTOR CABLE (NO. 8 AWG)
625	LF	2-CONDUCTOR TRAY CABLE (NO.12 AWG)
325	LF	2-CONDUCTOR (ALUMINUM SHIELDED) CABLE
830	LF	2-CONDUCTOR CABLE (NO. 14 AWG)
2475	LF	5-CONDUCTOR CABLE (NO. 14 AWG)
750	LF	7-CONDUCTOR CABLE (NO. 14 AWG)
365	LF	3/8 IN. STEEL SPAN WIRE
30	LF	BARE COPPER GROUND WIRE (NO. 6 AWG)
30	LF	2 IN. PVC CONDUIT [SCHEDULE 80] - TRENCHED
60	LF	3 IN. PVC CONDUIT [SCHEDULE 80] - TRENCHED
90	LF	3 IN. PVC CONDUIT [SCHEDULE 80] - BORED
200	LF	4 IN. PVC CONDUIT [SCHEDULE 80] - TRENCHED
325	LF	4 IN. PVC CONDUIT [SCHEDULE 80] - BORED
11	LF	CONCRETE FOUNDATION FOR TRAFFIC SIGNAL EQUIPMENT
6	LF	GROUND ROD - 3/4 IN. X 10 FT. LENGTH
1	CY	EMBEDDED ELECTRICAL SERVICE PEDESTAL (100 AMPS)
500	EA	12 IN. WHITE THERMOPLASTIC PAVEMENT MARKING - CROSSWALK
15	EA	24 IN. WHITE THERMOPLASTIC PAVEMENT MARKING - STOP LINE
2	EA	LOOP DETECTOR SPLICE
3	EA	BACK GUY
5	EA	RELOCATE EXISTING OVERHEAD SIGNS
1	EA	RELOCATE EXISTING COUNTDOWN PEDESTRIAN SIGNAL HEAD
3	EA	RELOCATE EXISTING COUNTDOWN PEDESTRIAN SIGN AND APS BUTTON
2	EA	REMOVE AND DISPOSE OF EXISTING CONCRETE FOUNDATION 12 INCHES BELOW GRADE
LUMP SUM	LS	RELOCATE EXISTING UNDERGROUND INTERCONNECT CABLE (APPROX. 400 LF.)
LUMP SUM	LS	REMOVAL OF EXISTING TRAFFIC SIGNAL EQUIPMENT

PROJECT CONTACTS:

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MR. RICHARD L. DUFF, SR. CHIEF TRAFFIC OPERATIONS DIVISION
PHONE: (410) 787-7630
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THE POWER COMPANY REPRESENTATIVE IS:

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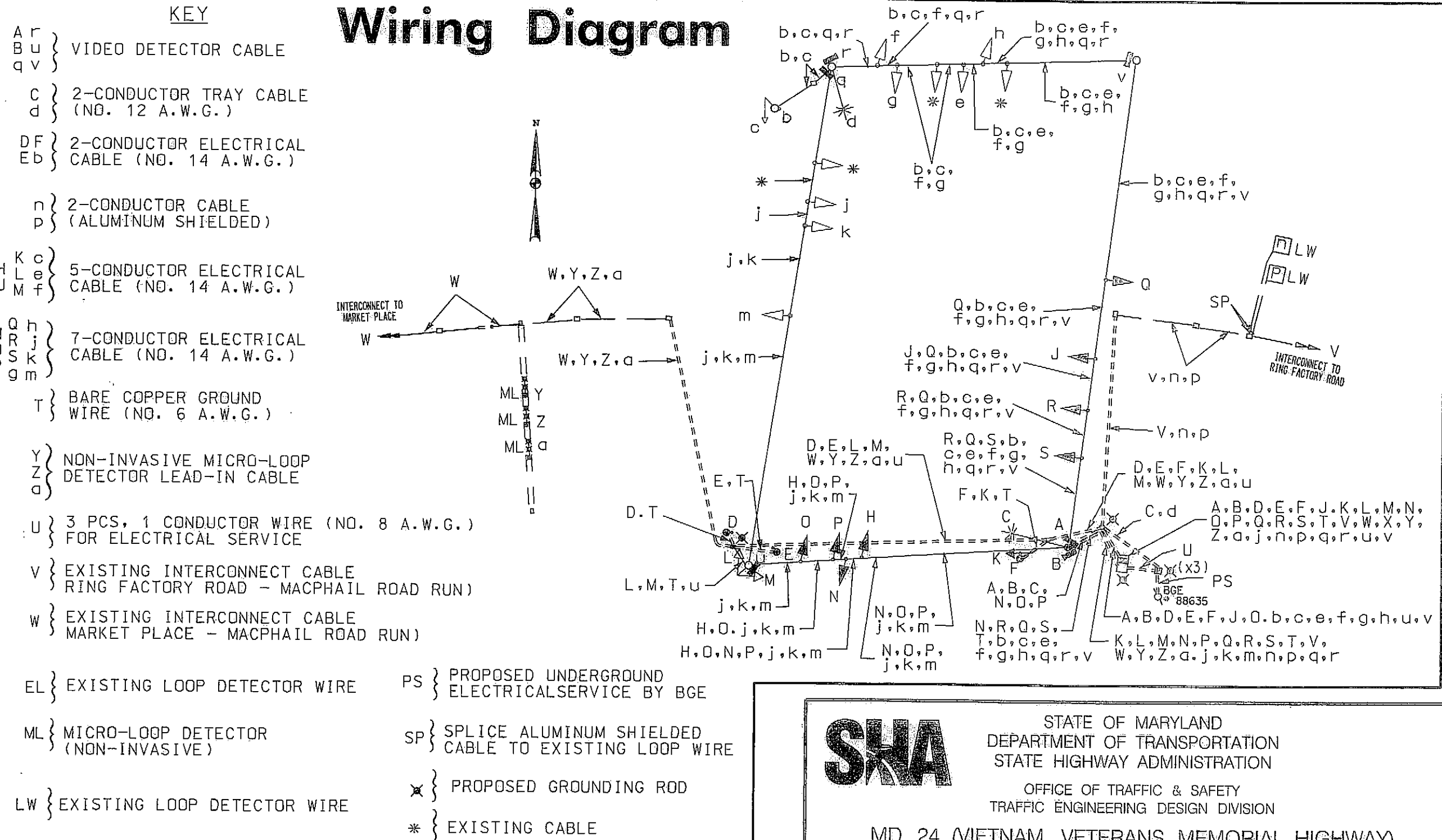
Phase Chart

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
PHASE 1 AND 5	←G-	←G-	R	R	←G-	←G-	R	R	←R-	R	←R-	R	R	←R-	←R-	←R-	R	R	DW	DW	DW	DW
1 AND 5 CHANGE TO 1 AND 6, 2 AND 5, OR 2 AND 6																						
PHASE 1 AND 6	←G-	←G-	G	G	←R-	←R-	R	R	←R-	R	←R-	R	R	←R-	←R-	←R-	R	R	DW	DW	DW	DW
1 CHANGE	←Y-	←Y-	G	G	←R-	←R-	R	R	←R-	R	←R-	R	R	←R-	←R-	←R-	R	R	DW	DW	DW	DW
PHASE 2 AND 5	←R-	←R-	R	R	←G-	←G-	G	G	←R-	R	←R-	R	R	←R-	←R-	←R-	R	R	DW	DW	DW	DW
5 CHANGE	←R-	←R-	R	R	←Y-	←Y-	G	G	←R-	R	←R-	R	R	←R-	←R-	←R-	R	R	DW	DW	DW	DW
PHASE 2 AND 6	←R-	←R-	G	G	←R-	←R-	G	G	←R-	R	←R-	R	R	←R-	←R-	←R-	R	R	WK	WK	DW	DW
PED CLEARANCE	←R-	←R-	G	G	←R-	←R-	G	G	←R-	R	←R-	R	R	←R-	←R-	←R-	R	R	FLDW	FLDW	DW	DW
2 AND 6 CHANGE	←R-	←R-	Y	Y	←R-	←R-	Y	Y	←R-	R	←R-	R	R	←R-	←R-	←R-	R	R	DW	DW	DW	DW
PHASE 3 AND 7	←R-	←R-	R	R	←R-	←R-	R	R	←G-	R	←G-	R	R	←G-	←G-	←G-	R	R	DW	DW	DW	DW
3 AND 7 CHANGE TO 3 AND 8, 4 AND 7, OR 4 AND 8																						
PHASE 3 AND 8	←R-	←R-	R	R	←R-	←R-	R	R	←R-	R	←R-	R	R	←G-	←G-	←G-	G	G	DW	DW	DW	DW
3 CHANGE	←R-	←R-	R	R	←R-	←R-	R	R	←R-	R	←R-	R	R	←Y-	←Y-	←Y-	G	G	DW	DW	DW	DW
PHASE 4 AND 7	←R-	←R-	R	R	←R-	←R-	R	R	←G-	G	←G-	G	G	←R-	←R-	←R-	R	R	DW	DW	DW	DW
7 CHANGE	←R-	←R-	R	R	←R-	←R-	R	R	←Y-	G	←Y-	G	G	←R-	←R-	←R-	R	R	DW	DW	DW	DW
PHASE 4 AND 8	←R-	←R-	R	R	←R-	←R-	R	R	←R-	G	←R-	G	G	←R-	←R-	←R-	G	G	DW	DW	DW	DW
4 AND 8 CHANGE	←R-	←R-	R	R	←R-	←R-	R	R	←R-	Y	←R-	Y	Y	←R-	←R-	←R-	Y	Y	DW	DW	DW	DW
PHASE ALT 4 AND 8	←R-	←R-	R	R	←R-	←R-	R	R	←R-	G	←R-	G	G	←R-	←R-	←R-	G	G	DW	DW	WK	WK
PED CLEARANCE	←R-	←R-	R	R	←R-	←R-	R	R	←R-	G	←R-	G	G	←R-	←R-	←R-	G	G	DW	DW	FLDW	FLDW
ALT 4 AND 8 CHANGE	←R-	←R-	R	R	←R-	←R-	R	R	←R-	Y	←R-	Y	Y	←R-	←R-	←R-	Y	Y	DW	DW	DW	DW
FLASHING OPERATION	FL ←R-	FL ←R-	FL/Y	FL/Y	FL ←R-	FL ←R-	FL/Y	FL/Y	FL ←R-	FL/R	FL ←R-	FL/R	FL/R	FL ←R-	FL ←R-	FL ←R-	FL/R	FL/R	DARK	DARK	DARK	DARK

GENERAL NOTES

- VIDEO CAMERA LOCATION/ALIGNING SHALL BE COORDINATED WITH THE SHA ENGINEER.
- THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
- PAVEMENT MARKINGS DETAILED ARE PROPOSED AND ARE TO BE INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH MD-SHA STANDARDS. ALL OTHER PAVEMENT MARKINGS ARE TO BE CONSIDERED AS EXISTING.
- GEOMETRICS SHALL BE CONFIRMED PRIOR TO THE INSTALLATION OF SIGNAL EQUIPMENT. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS. HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCES AS SPECIFIED IN MD 816.03, MD 818.01, MD 818.02, MD 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
- ALL UNDERGROUND AND OVERHEAD UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC AND ARE NOT TO BE CONSIDERED COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE TRAFFIC SIGNAL EQUIPMENT WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE PROJECT ENGINEER IMMEDIATELY.
- PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 IN. FROM A 60 IN. x 60 IN. LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
- THE 10 FT. SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM FACE OF PUSHBUTTON TO FACE OF PUSHBUTTON, NOT CENTER TO CENTER OF POLE.
- PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.
- THE LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.09 & FIG 4E-2 AND THE NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE". IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL A DESIGN WAIVER IS OBTAINED. APPROVED BY THE DIRECTOR, OFFICE OF TRAFFIC AND SAFETY.
- ALL UNUSED CABLE SHALL BE REMOVED.

Wiring Diagram



SHA

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

MD 24 (VIETNAM VETERANS MEMORIAL HIGHWAY)
AT MACPHAIL ROAD
BEL AIR, MD

GENERAL INFORMATION PLAN

SCALE N/A DATE November 12, 2010 CONTRACT NO. BW996M82

DESIGNED BY FRANK HOECKEL COUNTY HARFORD

DRAWN BY FRANK HOECKEL LOGMILE 12002408.53

CHECKED BY TMS NO. K611

F.A.P. NO. N/A TOD NO.

TS NO. 333E DRAWING G1-01 OF 01 SHEET NO. 2 OF 2

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